

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 01-245512

(43)Date of publication of application : 29.09.1989

---

(51)Int.Cl. H01L 21/205

---

(21)Application number : 63-071873

(71)Applicant : NIPPON TELEGR & TELEPH CORP <NTT>

(22)Date of filing : 28.03.1988

(72)Inventor : KOHAMA TAKETAKA  
OMACHI TOKURO

---

## (54) FORMATION OF III-V COMPOUND SEMICONDUCTOR BY EPITAXIAL GROWTH

### (57)Abstract:

**PURPOSE:** To make it possible to epitaxially grow a II-V compound semiconductor of high quality by a method wherein an atomic layer, consisting of a group V element which is different from the group V element constituting the III-V compound semiconductor, is formed on an Si substrate.

**CONSTITUTION:** Using an Si substrate having the orientation slightly deviated from [100] as a substrate, and the Si substrate is inserted into an MOCVD device. After the surface of the Si, substrate has been cleaned, the temperature of substrate is set at 700W900° C, AsH<sub>3</sub> gas is introduced for five minutes as the gas containing the group V element which is different from the V-group element constituting GaP, and an As atomic layer is formed on the Si substrate. Then, after the AsH<sub>3</sub> gas has been switched to the PH<sub>3</sub> gas which is the gas containing a group-V element different from the group-V element constituting GaP, trimethylgallium is introduced as the gas containing the group III element which constitutes GAP, and the GAP is formed on the substrate.

---

### LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2000 Japan Patent Office